Research Use Only

Nucleic Acid Automatic Extraction System

User Manual

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Symbols

	Date of manufacturing	
	Manufacturer	
	Catalog number	
	Serial number	
	Alternative current	
	Grounded Conductor	
	Supplementary Fuse	
	Consult instruction before use	
	Warning.	Biohazard.
	Warning	Risk of personal injury to the operator or a safety hazard to the surrounding area.
	WEEE symbol	This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC.

1 Introduction

The **taco™** Nucleic Acid Automatic Extraction System (**taco™**) extracts nucleic acid by using magnetic separation technology. The magnetic beads are modified by coating silica to provide the binding ability to nucleic acid. After binding the nucleic acid, the beads will be separated from the bio-solution. The nucleic acid will be purified and eluted by several washing and eluting steps. The **taco™** is intended to be used for extracting nucleic acid for research use purpose by using corresponding nucleic acid extraction kit developed by GeneReach Biotechnology Corporation (GeneReach).

1.1 Intended Use

The **taco™** is intended to extract nucleic acid from nucleic acid containing solutions for research purpose using the corresponding extraction kits developed by GeneReach through the automatic transfer and processing of magnetic bead.

This product is intended to be used by professional users such as well-trained laboratory technicians familiar with molecular biology techniques. It is not intended to be used for any therapeutic or diagnostic purpose.

1.2 taco™ Extraction Principle

The **taco™** is based on the magnetic separation technology, with the special design of the disposable **taco™** Plate & Sleeve which is provided with the reagent kit.

Samples and reagents including the magnetic particles are dispensed into the wells according to the corresponding kit instructions. The automated steps performed by the **taco™** include:

- Magnetic Bead is transferred and mixed with samples.
- Samples are lysed and nucleic acid is bound to Magnetic Bead.
- The impurity is washed away from the nucleic acid is bound to Magnetic Bead.
- Nucleic acid is eluted from the Magnetic Bead.

2 taco™ Layout

2.1 Product Components

Component	Quantity
taco™	1
Power Cord	1
User Manual	1
Warranty Card	1

2.2 taco™ Specifications

Specification	
Dimensions (W × D × H)	42 cm × 30 cm × 38 cm
Net Weight	23.4 kg
Power Requirement	100-120/200-240V AC, 50/60 Hz, 2A
Fuse	2A/250V
Operating Temperature	16–30℃
Through-put	at least16 Samples

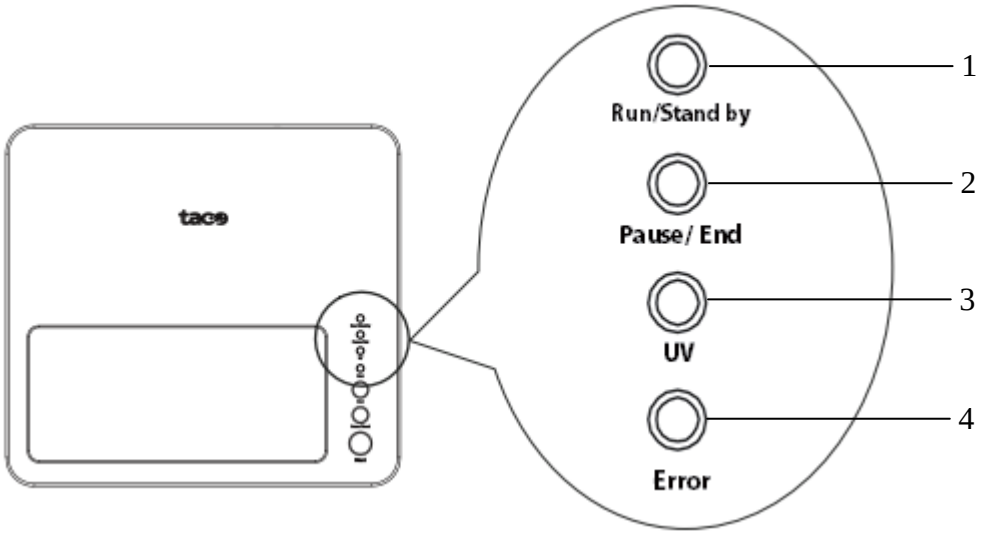
2.3 Equipments to Be Supplied by User

- **taco™** nucleic acid extraction kit
- **taco™** Plate & Sleeve
- Uninterrupted power system (UPS) (optional)
- Laminar air-flow (optional)
- Disposable gloves
- Protective goggles
- Lab coat

Note: To avoid power failure, connecting the **taco™** to an UPS is recommended.

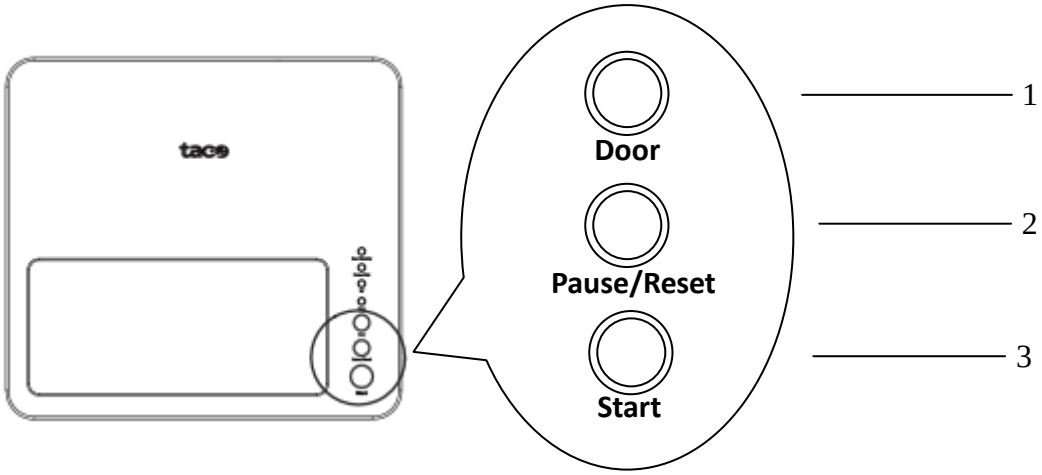
2.4 The Front View of the taco™

2.4.1 LED Signal



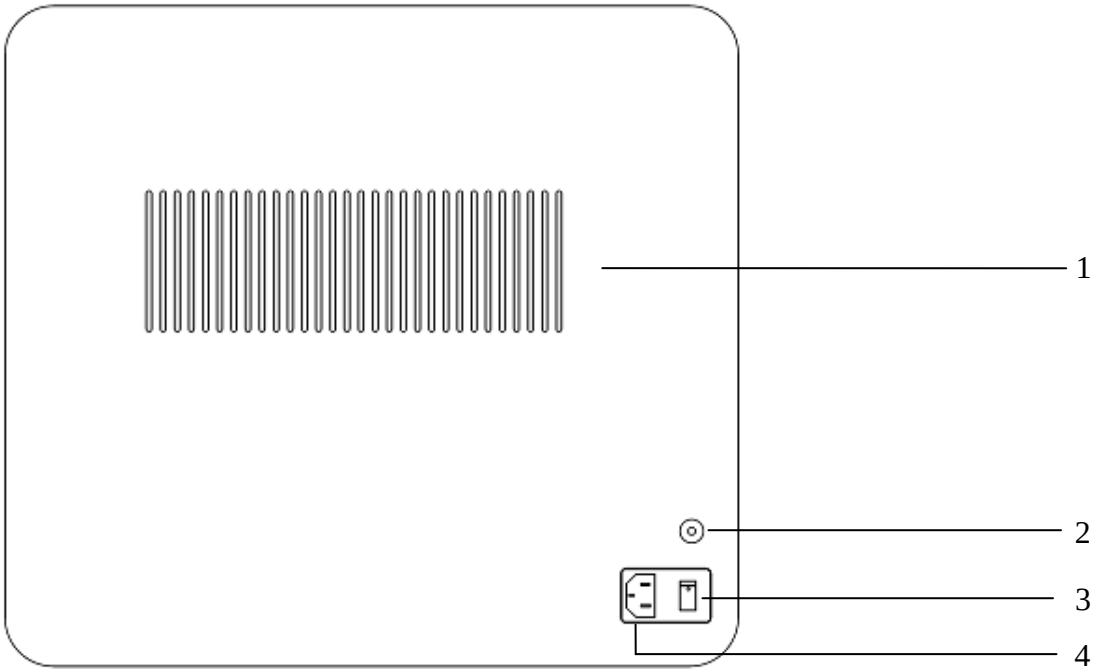
No	Indicator / *LED Color	Signal	Description
1	Run / Stand-by Signal *Green LED	Lights Up	Self-test passed. Ready to run.
		Flashing	Extraction in process.
2	Pause / End Signal *Yellow LED	Lights Up	Extraction finished.
		Flashing	Extraction paused.
3	UV On Signal *Green LED	Lights UP	UV Lamp on.
4	Error Signal *Red LED	Light UP	Any Error occurred.

2.4.2 Operation Button



No	Button	Description	Function disabled under the following status
1	**Door**	Press to open/close the door.	1. During the extraction. 2. UV Lamp is on.
2	**Pause/Reset**	Short press to pause the machine.	1. During Magnetic Bead transfer. 2. During Magnetic Bead drying. 3. UV Lamp is on.
		While paused or extraction finished, long press to reset the machine	Reset is functional only under pause or extraction finished status.
3	**Start**	Press to start/resume the machine.	**1.** Door is open. **2.** UV Lamp is on.

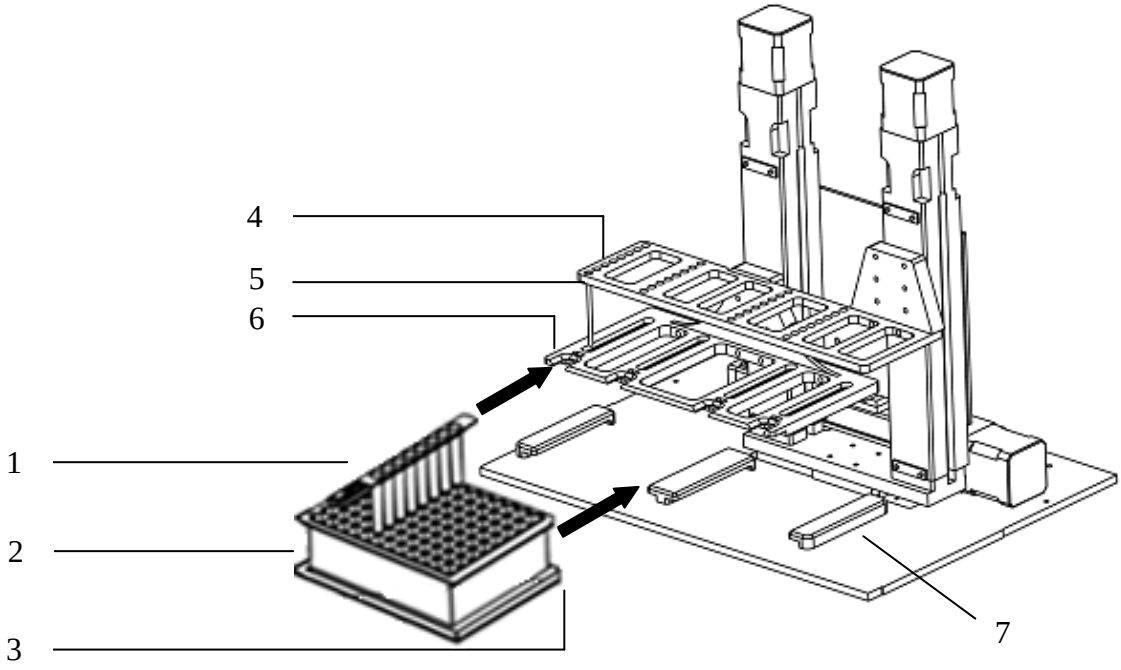
2.5 The Rear View of the taco™



No	Item	Description
1	Cooling vents	Ventilation
2	UV light switch	To turn on/off the UV light
3	Main Switch	To turn on/off the main power
4	Socket	To connect to the power cord

2.6 Loading taco™ Plate & Sleeve

2.6.1 Loading the 96-Well Extraction Plate

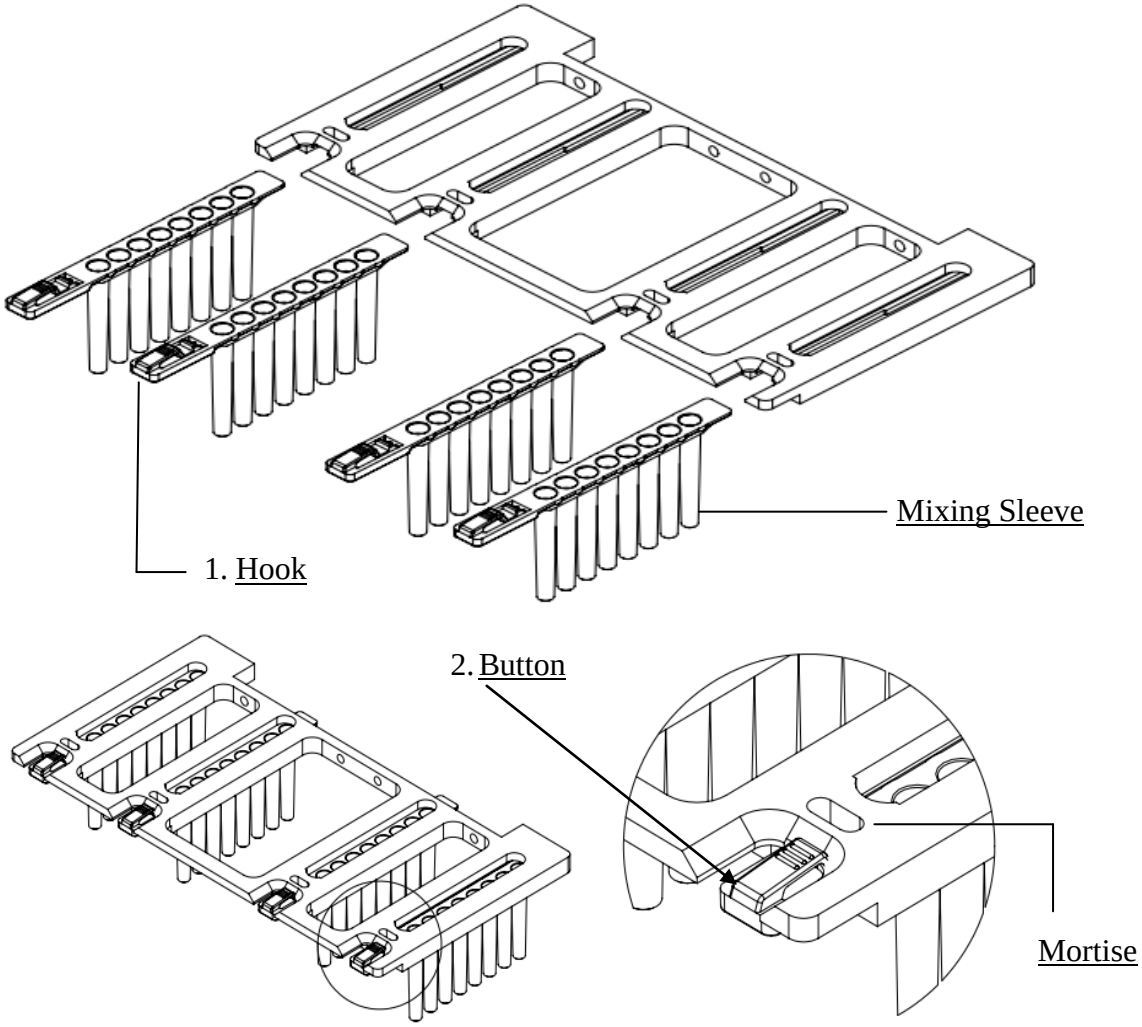


No	Item	Description
1	Mixing Sleeve	Protection of magnetic sticks and mixing the sample with Magnetic Bead.
2	96-Well Extraction Plate	Deep well plate for extraction. Use two Mixing Sleeves for each 96-Well Extraction Plate when processing extraction.
3	Cut site of the plate	At the top right for installation.
4	Upper tray	Shipping anchor of the Magnetic rod.
5	Magnetic rod	Provide binding and mixing function.
6	Lower tray	Housing for the Mixing Sleeve.
7	Plate holder	Housing for the 96-Well Extraction Plate.

Note:[1]The Mixing Sleeves and the 96-Well Extraction Plate should be placed on the same side when processing extraction (See illustrations above).

[2]Inadequate installation of **taco™** Plate & Sleeve may damage the machine.

2.6.2 Use of Mixing Sleeve



No	Item	Description
1	Hook of Mixing Sleeve	Lift up the hook to tenon the mortise.
2	Button of Mixing Sleeve	Press the button to remove Mixing Sleeve.

Note: Using non-recommended consumables may affect the device performance.

3. Important notes

After receiving the **taco™**, please check the instrument and accessories for damage. Should any question occurred, please contact your local distributor or GeneReach immediately. If any item is damaged, do not use the damaged components since the use may lead to poor performance of the instrument.

3.1 Safety Information

⚠	**Not following the instructions may cause personal injury or device failure.**

- When handling infectious materials, always wear a lab coat, disposable gloves and protective goggles.
- Do not touch any plug and electric switch with wet hands. Make sure to keep the **taco™** away from water.
- Turn off and unplug the machine before moving it.
- Package the **taco™** carefully before moving and delivering it. Vibration or crash may lead to damage.
- Place the machine in a room with good ventilation.
- Hold the plug while pulling it out. Do not pull the power cord directly.
- Do not place the power cord on any subject with high temperature.
- Do not look straight at the UV light while turning it on.
- Do not repair the machine by yourself, including fixing the door and changing the UV Lamp. Contact your local distributor or GeneReach directly to deal with the problems.
- Waste disposal must be in compliance with local laws.
- User should revalidate the **taco™** if the device has been moved.

3.2 Emergency Stop

3.2.1 Should any emergency occur, press "**PAUSE**" button or the "**MAIN SWITCH**" to stop the **taco™**.

3.2.2 After all emergency is cleared, please follow the instruction to resume/ restart the **taco™** (See 4.1 & 4.2).

4. Operation Procedure of taco™

4.1 How to START the taco™

4.1.1 Load the reagent to 96-Well Extraction Plate in advance (See **taco™** nucleic acid extraction kit manuals for instruction).

4.1.2 Plug in the **taco™** and switch on the main power, the device will complete self-check within 3 minutes. The machine is ready when the **green LED lights up**.

4.1.3 Press the door button to open the door of **taco™**, load 96-Well Extraction Plate and Mixing Sleeve according to the instructions (See chapter 2.6 "Loading Plate & Sleeve").

4.1.4 Push the Plate & Sleeve to the bottom of the plate holder and lower tray. Ensure the Plate & Sleeve are in the correct position.

4.1.5 Press the door button of the **taco™** to close the door.

4.1.6 Press "**START**" to begin the extraction.

Note: The operating temperature should be under room temperature(16~30°C)

Note: Under these circumstances listed below, the **"START"** function is **nonfunctional**:

- The UV Lamp is on.
- While the door of **taco™** is open.

4.2 How to PAUSE the taco™

4.2.1 During the extraction, press the "**PAUSE**" button to stop the **taco™** if necessary.

The **yellow LED** will flash under pause status**.**

4.2.2 The magnetic rods and Mixing Sleeves will move up to the top together.

4.2.3 Close the door of **taco™**, and press "Start/Resume" to resume the extraction.

Note: Under these circumstances listed below, the **"Pause"** will be **nonfunctional**:

- During the drying and transferring process of Magnetic Bead.
- The UV Lamp is on.

4.3 How to RESET the taco™

4.3.1 After the extraction is finished, the **yellow LED will goes up steadily together with a long beep sound.**

4.3.2 **Long press** the **"DOOR"** button to stop the alarm, and the door will be opened.

4.3.3 Take out the 96-Well Extraction Plate; the extracted nucleic acid is ready for immediate use.

4.3.4 To reset the **taco™, long press the "PAUSE/RESET"** button**.**

4.3.5 After a short beep sound, the **taco™** is reset and ready when **the green LED lights up.**

Note: Please take out the extracted nucleic acid immediately after extraction, otherwise it may not perform well in downstream applications.

Note: Under these circumstances listed below, the **"Reset"** function will be **nonfunctional**:

- The Reset function will only be **FUNCTIONAL** under pause status or when extraction finished.
- The UV Lamp is on.

4.4 How to Use the UV Lamp

4.4.1 After the extraction is finished, remove the Plate & Sleeve and press the **"RESET"** button.

4.4.2 Press the **UV light switch** at the rear of **taco™**, the sterilization will start automatically.

4.4.3 The sterilization will continue for 30 minutes. To manually stop the UV Lamp, press the **UV light switch** again.

Note: Under the circumstances listed below, the "**UV Lamp**" function will be **nonfunctional**:

- After the extraction, the **taco™** is not reset.
- The door of **taco™** is open.
- During the **taco™** extraction process.

4.5 How to shut down the taco™

4.5.1 Before switching off the **taco™**, please make sure the plates and sleeves are removed from the **taco™**.

4.5.2 Press the door button to close the door of the **taco™**.

4.5.3 Turn off the main switch at the rear of the **taco™** to shut down.

5. Cleaning and Maintenance

5.1 General Care

Do not disassemble the **taco™** for cleaning. This will void the warranty. Never allow liquids to sit on the extraction system surfaces for extended periods of time. Do not use solvent, detergent or bleach to clean the magnetic rods. Use only clean and wet paper towel to wipe out stains on magnetic rods.

Note: Wear gloves or other protective equipment. Always turn off and unplug the **taco™** before cleaning.

5.2 Dealing with Spills

If case of liquid spills, please contact your local distributor or GeneReach for assistance.

Do not dismantle the instrument for cleaning.

- Please make sure the total volume of each well does not exceed 900 μl before extraction.
- Wipe out visible stains with disposable paper towel immediately (See "Troubleshooting").
- Using UV light for sterilization after each extraction is recommended.

Troubleshooting

	Comments and Suggestions
taco™ does not perform normally	
(a) The LED light does not go up	• Check the plug to see if it has been connected to the power system. • Check the main power to see if it has been switched on. • Measure the voltage of electricity outlet. • Contact your local distributors or GeneReach for assistance.
(b) Self-test runs overtime	• Contact your local distributors or GeneReach for assistance.
(c) The upper tray and lower tray are not in correct position	• Contact your local distributors or GeneReach for assistance.
(d) Noises from the machine.	• Check the Mixing Sleeves to see if they have been pushed to the bottom of lower tray. • Check the 96-Well Extraction Plate to see if it has been pushed to the bottom of the plate holder. • Check that there is nothing preventing the track from moving. • Contact your local distributor or GeneReach.
(e) Liquid spilled and adhered to device	• The total volume of each well should not exceed 900 μl. • Use UV light for sterilization and then clean the **taco™** with water or laboratory detergent. Repeat the extraction procedures with new samples and reagents.
Magnetic rod function failure	
(a) Stain on the magnetic rod.	• Ensure the Mixing Sleeves are installed before each extraction. • Use clean and wet paper towel to wipe it out carefully. Do not use any solvent or detergent to clean the magnetic rods.
(b) The magnetic rod comes off from the heat-shrink sleeve	• Contact your local distributor or GeneReach.

Comments and Suggestions

UV Lamp function failure

UV light does not light up	● Check that the door is closed; the UV light cannot operate while the door is open. ● Check to see if the **taco™** is performing extraction. The UV light cannot operate during extraction. ● Contact your local distributor or GeneReach for assistance.

Door function failure

The door of **taco™** cannot open/ close normally	● Contact your local distributor or GeneReach for assistance.

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